

SWAT ET Calculation Question

Posted by mdnewton - 2009/04/27 16:27

I was wondering how ET was calculated for SWAT in AGWA2. I added water bodies to my study area, which decreased the ET values. This bothered me a little, so I ended up changing my entire study area to water, and the ET numbers dropped significantly. Granted with no vegetation, transpiration would drop, but evaporation should increase more than enough to compensate. So, the short question is: How is ET calculated in AGWA2? Thanks!

Michael

EDIT: Does it by chance have something to do with the look-up table?

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Re:SWAT ET Calculation Question

Posted by isburns - 2009/06/27 23:36

AGWA instructs SWAT to use the Penman-Monteith method to calculate ET. To read more about the theory and equations used in the Penman-Monteith method, please review the theoretical documentation for SWAT available at <http://www.brc.tamus.edu/swat/doc.html>.

I'm guessing what's going on here is that the available water for ET is declining which causes ET to decline. The water availability would decrease because changing the entire study area to water in the land cover would result in 100% runoff and 0 infiltration (curve numbers in the MRLC look-up tables for water are 100, which means 100% runoff). Changing the land cover to water doesn't actually cause SWAT to simulate a water body like a lake, so evaporation would still be calculated as from soil instead of the surface of a water body. To simulate bodies of water, they must be explicitly setup using reservoirs and ponds.

AGWA2 does not currently have the ability to setup reservoirs and ponds during the discretization and parameterization process but it is being worked on. Adding reservoirs or ponds manually to the SWAT simulation is not for the faint of heart; it requires an in-depth knowledge of SWAT and it's input files.

Shea

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Re:SWAT ET Calculation Question

Posted by mdnewton - 2009/07/22 20:29

Thank you. That helps a lot. :)

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